

REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

New Claim 24 recites that the seat disposed on an outer circumferential surface of said second cylinder for installing a frequency converter thereon comprises a flat surface. Basis for this feature is found in Figure 2. Claims 10-23 have been withdrawn from consideration.

Claims 1, 5-7 and 9 have again been rejected under 35 U.S.C. § 103 as being unpatentable over Yamamoto et al. in view of Khazanov et al. In doing so, the Examiner has again taken the position that first and second cylinder housings integrally formed of one metal material would have been obvious in Yamamoto et al., either (1) in dependence on “the choice of manufacturer and the convenience and availability of machines and tools necessary to construct the pump,” or (2) in view of Khazanov et al.

The Examiner’s attention is respectfully directed to MPEP § 2143.01:

THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION

FACT THAT THE CLAIMED INVENTION IS WITHIN THE CAPABILITIES OF ONE OF ORDINARY SKILL IN THE ART IS NOT SUFFICIENT BY ITSELF TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

A statement that modifications of the prior art to meet the claimed invention would have been “ ‘*well within the ordinary skill of the art at the time the claimed invention was made*’ ” because the references relied upon teach that all aspects of the claimed invention were individually known in the art *is not sufficient* to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. (Emphasis added).

Thus the Examiner is obligated to identify a suggestion in the prior art for the desirability of the invention in view of the prior art. It is not sufficient to simply allege that the invention would be within the ordinary skill in the art, without also identifying a

motivation for modifying the prior art. The exception identified in MPEP § 2144.04 (e.g., *In re Larson*) is limited to modifications which are simply a choice of design. However, this exception does not apply where the claimed invention provides an advantage over the prior art. For example, the MPEP notes that the integral construction in *Schenck v. Nortron Corp.* (218 USPQ 698 (Fed. Cir. 1983)) was patentable over a multi-part construction because it eliminated the need for dampening. Here, as explained below, the claimed unitary construction ensures sufficient heat transfer from both the motor and the frequency converter to the handled fluid.

Applicants respectfully submit that the Examiner has failed to set forth a *prima facie* case of obviousness. As to Yamamoto et al., the Examiner has recognized that Yamamoto et al. fails to disclose integral first and second cylinders but alleges that this difference would have been obvious in dependence on “the choice of manufacturer and the convenience and availability of machines and tools necessary to construct the pump.” However, this is simply an impermissible “well within the ordinary skill of the art at the time the claimed invention was made” rationale. It does not identify a motivation for one skilled in the art to have provided one piece first and second cylinders.

Indeed, the suggestion of Yamamoto et al. is the *opposite*. Yamamoto et al. discloses a motor pump having both a canned motor and a frequency converter. Yamamoto et al. teaches that the handled fluid is to be used to remove heat from both the motor and the frequency converter, thus eliminating the need for a heat sink for the frequency converter (col. 1, lines 51-56). However, Yamamoto et al. further teaches that forming the outer cylinder of a separate pressed steel member promotes efficient heat transfer (paragraph bridging cols. 4-5). Thus Yamamoto et al. touts separate components as being desirable for efficient heat transfer from both a canned motor and a frequency converter to a handled fluid.

Nor can the Examiner rely on the exception of *In re Larson*. This is not a case of a “choice of design” in which a designer can choose amongst several known designs, all of which provide essentially the same result. The invention of Claim 1 is directed to a motor frame in which the handled fluid flowing in the space between the first and second cylinders must remove the heat generated by *both* a motor stator in the first cylinder and a frequency converter installed at a seat disposed on an outer circumferential surface of the second cylinder. In order to effectively remove heat from both sources, the heat transfer from both sources to the handled fluid must be maximized. Integral first and second cylinders, and the seat, *eliminates the need for joints between separate parts*, which joints in Yamamoto et al. can be a source of heat transfer resistance.

For example, Yamamoto et al. describes:

The cable housing 20 is hermetically welded to the outer motor frame barrel 14, and the stays are welded to the outer motor frame barrel 14, thereby forming a canned motor assembly. Next, the canned motor assembly is inserted into the outer cylinder 2 having the hole 2a, the cable housing 20 is caused to pass through the hole 2a, and then hermetically welded to the outer cylinder 2. Further, the stays 43 and the outer cylinder 2 are welded together. An annular fluid passage 40 is formed between the outer motor frame barrel 14 and the outer cylinder 2. (Col. 4, lines 15-27).

The welded joints for the stays 43 of Yamamoto et al. can create heat transfer resistance such that insufficient heat from the motor 6 reaches the outer cylinder 2, reducing the overall heat transfer to the handled fluid. This problem is eliminated by the integral design of the first and second cylinders of the claimed invention. Accordingly, the Examiner cannot properly dismiss this difference as a “choice of design” without identifying a motivation in the art for modifying the separate cylinders of Yamamoto et al.

Applicants note the statement in the “Response to Arguments” portion of the Office action that “said joints are not recited in the rejected claims.” However, the lack of joints is inherent in the claimed integral construction.

As for modifying Yamamoto et al. in view of Khazanov et al., as a threshold matter, this would not have been obvious since it would have been *contrary to the teaching of* Yamamoto et al. that separate components are desirable for efficient heat transfer from both a canned motor and a frequency converter.

Beyond this, the handled fluid in Khazanov et al. does not flow in a space defined between the shell member sidewall 41 (first cylinder) and the shell member 40 (second cylinder). Specifically, a handled fluid flows from the pump inlet 20 through the impeller 18 into the pump outlet 20. Coolant, and not a handled fluid, flows from the reservoir 45 into the space defined between the shell member sidewall 41 and the shell member 40 (see column 5, lines 7-27). Thus, the fluid flow in Khazanov et al. is not related to fluid flow of the motor in Yamamoto et al.

Applicants note the statement in the "Response to Arguments" that Khazanov et al. was used only for teaching integral cylinders and not for its operational characteristics. While this may be true, *the operational characteristics of* Khazanov et al. *are material to its ability to suggest a modification of the structure of* Yamamoto et al. to those skilled in the art. As noted above, Yamamoto et al. teaches that the handled fluid is to be used to remove heat from both a motor and a frequency converter. Those skilled in the art would therefore look, for suggestions as to modifications of Yamamoto et al., to other designs in which the handled fluid is used to remove heat from both a motor and a frequency converter. On the other hand, those skilled in the art would not look to a pump such as Khazanov et al., *which lacks a frequency converter* and in which the handled fluid is not used to remove heat, for a teaching to improve the heat transfer from the frequency converter to the handled fluid in Yamamoto et al.

Applicants further note that claim 1 recites that the second cylinder has on opposite axial ends thereof sockets for providing coaxial relationship with attached components and

bolt seats for fastening bolts. The integral structure in the invention permits sockets on the second cylinder to provide a coaxial relationship with a simplified structure. No sockets for providing coaxial relationship with attached components are present in the second cylinder of Yamamoto et al. For example, the guide device 11 in Yamamoto et al. is attached to a socket of the motor can.

Claim 3 depends from Claim 1 and further recites that the seat for installing the frequency converter thereon is positioned between bolt seats in the motor frame as viewed from an axial end. This is shown in Figure 2 and is described at lines 17-24 of page 9 and at lines 6-16 of page 22. As is there described, due to this construction the seat 3 can have a relatively large area, which contributes to effective heat transfer and the cooling of the frequency converter.

Claim 3 was rejected under 35 U.S.C. § 103 as being obvious over Yamamoto et al. in view of Khazanov et al., and further in view of Japanese patent publication 10-080093 (Norihei). The Examiner there recognized that the prior art does not disclose the frequency converter seat being located between the bolt seats, but nonetheless alleged that the “position of the seat with respect to the bolt seats is directly related to installation requirements and not to any structural relation required for enablement of the unit.”

Applicants again note that 35 U.S.C. § 103 requires that there be a demonstrated motivation for those skilled in the art to modify the prior art in accordance with the claimed invention. Here, the claimed position of the seat with respect to the bolt seats permits the seat to have a large surface area, which contributes to heat transfer and the cooling of the frequency converter. Norihei is not directed to a canned motor, and so could provide no motivation for arranging parts so as to improve heat transfer in Yamamoto et al. Claim 3 therefore defines over any combination of the above references.

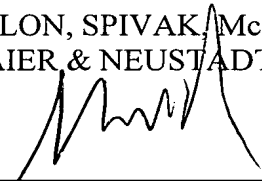
Concerning the rejection of Claim 4 as being obvious over Yamamoto et al. in view of Khazanov et al. and Moriya et al., Moriya et al. provides no teaching for overcoming the shortcomings of Yamamoto et al. in view of Khazanov et al. with respect to Claim 1 from which Claim 4 depends, and so no combination of the above references would anticipate or render obvious the subject matter of any of the claims.

New claim 24 recites that the seat disposed on an outer circumferential surface of said second cylinder for installing a frequency converter thereon comprises a flat surface. This is significant for maximizing heat transfer since even small differences in curvature between two curved surfaces – as might result from thermal stresses – can result in gaps between the surfaces. As is evident from Figure 2 of Yamamoto et al., the seat surface thereof is not flat.

Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early Notice of Allowability.

Respectfully submitted,

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